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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,315	10/01/2003	Keiji Hayashi	1324.68392	8188

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EXAMINER

PAYNE, SHARON E

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/676,315	Applicant(s) HAYASHI ET AL.	
	Examiner Sharon E. Payne	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 9-12 and 15-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because of the following informality: the phrase "an optical guiding" should be "an optical waveguide" in line 5. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 9-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Farchmin et al. (U.S. Patent 5,567,042) in view of Takahashi et al. (JP 2000010095 A).

Regarding claim 9, Farchmin et al. discloses a light reflecting reflector (reference number 26), a plurality of cold-cathode tubes (reference numbers 28a-f) disposed inside the reflector (Fig. 4), wherein the reflector has a reflective surface that reflects the light having been emitted by the cold-cathode tubes in the direction nearly perpendicular to the wall of each tube,

in the direction in which the light thus reflected does not re-enter the cold-cathode tubes (Fig. 5).
Farchmin et al. does not disclose an optical waveguide.

Takahashi et al. discloses an optical waveguide connected with an open end of the reflector to guide the light emitted by the tubes (reference number 1, Fig. 1, English abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the light guide of Takahashi et al. in the apparatus of Farchmin to make the light output more uniform. See the English abstract of Takahashi et al.

Concerning claim 10, Farchmin et al. discloses the reflective surface (reference number 50) being so disposed that the surface reflects the emitted light at an angle at which the reflected light runs through the space between the cold-cathode tube and the reflector adjacent thereto or between neighboring cold-cathode tubes (Fig. 5).

Regarding claim 11, Farchmin et al. discloses the reflective surface (reference number 50) being so disposed that the surface reflects the light emitted by one cold-cathode tube at an angle at which the reflected light runs through the space between the one cold-cathode tube and the other cold-cathode tube (Fig. 5) and that the surface reflects the light emitted by the other cold-cathode tube at an angle at which the reflected light runs through the space between the one cold-cathode tube and the wall surface of the reflector (Fig. 5, ray 60).

Concerning claim 12, Farchmin et al. discloses the reflective surface being composed of a plurality of curved segments (Figs. 3-5, reference numbers 54a-f).

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuki (JP 10-091079) in view of JP 09282918 A (hereinafter "Okahira").

Regarding claim 15, Kazuki discloses a light source (reference number 1) having a tube with a phosphor dispersed inside a wall of the tube (fluorescent tube, reference number 1), a

housing (reference number 2) that houses the tube (Fig. 3) and has a reflector formed on an inner surface (Fig. 4), and a transparent filler (reference number 3) filled in the housing (Fig. 5), and an optical waveguide (reference number 4) guiding the light from the light source and emitting the light through a light emitting surface (Fig. 1A). Kazuki does not specifically disclose a cold cathode tube.

Okahira discloses a light source having a cold-cathode tube with a phosphor dispersed inside the wall of the tube (cold cathode fluorescent tube, English abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cold cathode fluorescent tube of Okahira in the apparatus Kazuki to lower the cost of the device. See the English abstract of Okahira.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuki in view of Suzawa (U.S. Patent 4,487,481) and further in view of JP 09282918 A (hereinafter "Okahira et al.").

Regarding claim 16, Kazuki discloses a light source having a tube (referenced number 1), a housing (reference number 2) that houses the tube (Figs. 3 and 4) and has a reflector (reference number 2) formed on an inner surface (Fig. 4), and a transparent filler (reference number 3) filled in the housing (Fig. 8B), an optical waveguide (reference number 4) guiding the light from the light source unit and emitting light through a light-emitting surface (Fig. 8B). Kazuki does not disclose a temperature sensor or a heating element.

Suzawa discloses a cold cathode tube (column 2, lines 25-30), temperature sensor for controlling the temperature of the cold-cathode tube (column 2, lines 25-30).

Okahira et al. discloses a heating element (reference number 46a) on the inner surface of the housing (Fig. 1) for heating the cold-cathode tube (reference number 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the temperature sensor of Suzawa in the apparatus of Kazuki stabilize the temperature of the apparatus. See the abstract of Suzawa.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heating element of Okahira in the apparatus of Kazuki and Ichikoh to "improve the lighting of a cold cathode fluorescent lamp at low temperature." See the English abstract of Okahira et al.

Allowable Subject Matter

7. Claims 13 and 14 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter.

The prior art fails to disclose a lighting unit having a second optical waveguide disposed in the space between the cold-cathode tube and the reflector and having an end that faces an end of the first optical waveguide wherein a space is formed between the cold-cathode tube and the second optical waveguide as recited in claim 13.

Response to Arguments

9. Applicant's arguments filed 6/7/2006 have been fully considered but they are not persuasive. Applicant argues that the references used to reject claim 15 do not specifically disclose the use of a phosphor in the cold-cathode tube. Okahira discloses a cold cathode fluorescent tube. One of the basic principles of any fluorescent tube is that phosphors are used inside the wall of the tube. This argument was made in the prior office action, and the Applicant does not specify why he disagrees with it. (Putting something inside the wall of the tube is

putting something inside the tube.) The amendment really does not change the meaning of the claim, and the rejection stands.

Regarding claim 16, Applicant appears to argue that since one reference does not disclose the heating element and the reflector on the same inner surface of the housing, the claim is allowable. To the contrary both elements are shown by different references for the reasons specified in the rejection. To reject the claim, the Examiner does not have to show the elements on the same surface in one reference. The Examiner can show the elements separately in two different references. Furthermore, the inner surface of a housing can be several separate surfaces. (An inner surface is seldom merely a flat surface when dealing with a three-dimensional housing; it is made of several surfaces enclosing an inner area.) Therefore, the claim really does not require that the heating element and the reflector be on the same exact surface. It just requires that both elements be on one of the inside surfaces of the housing. Two separate references show both features, and, for the reasons specified below, the two references may be combined.

Applicant argues that since Okahira teaches a slightly different configuration with respect to the reflector, claim 16 is allowable because Okahira teaches away from another configuration. A reference teaches away from a certain configuration only when the reference says not to do something, not when it just teaches a different way. The Applicant has not shown where Okahira says not to do something, and the rejection stands.

Applicant also states that he does not agree with the rejection of claim 16 for the reasons of record prior to the present amendment, but the Applicant does not say why he disagrees with the prior office action. Thus, the prior reasons stated in the office action still stand.

The arguments regarding Farchmin are accepted, but the claims are being rejected over new art. The amendment of the abstract is accepted.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Sharon Payne
Patent Examiner
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